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How to apply and remove medical gloves: at a glance

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This article will:

- Provide a rationale for the need to prevent the spread of infection
- Discuss the types of medical gloves that are available
- Provide an overview of the application techniques that can be used

Why do healthcare professionals need to wear medical gloves?

Microorganisms, pathogens and infectious agents, such as bacteria, viruses, fungi, protozoa and prions, live in, on and all around us (Delves *et al.*, 2017). Whilst these do not always present as a threat, for some individuals, who may be susceptible or more likely to be exposed to larger numbers of organisms (patients and healthcare workers) these may enter the body and cause infection and disease (Ward, 2016). Thus, within healthcare institutions, great length are taken in order to reduce the spread of these microorganisms. One way that this can be achieved is by limiting the means of transmission; the most common being touch (direct or indirect). Hands are therefore a primary source of the spread of infection and as such, hand decontamination is an essential preventative measure to reduce to risk of the transmission of healthcare-associated infections (NICE, 2012). However, whilst handwashing is effective, there are some instances when an additional layer of protection is required, in order to safeguard the wearer and patient.

Medical gloves are just one product within the range of personal protective equipment (PPE), which are widely used and play a primary role in the protection of patients and healthcare professionals. These must be worn when making contact with blood and bodily fluids; when handling sharps and contaminated devices; when carrying out invasive procedures; and when making contact with sterile sites (Loveday *et al.*, 2014).

Which gloves and application technique should I use?

Before selecting which gloves are required, it is important to consider what the task or skill being undertaken entails, and whom the gloves are protecting. Non-sterile gloves should be worn when carrying out non-invasive routine interventions, such as assisting with personal hygiene and when handling bed linen (Radcliffe and Smith, 2014). When carrying out a clinical procedure, an aseptic non-touch technique (ANTT) risk assessment is additionally required in order to ascertain if the procedure necessitates the adoption of a standard or surgical ANTT approach. This involves assessing the difficulty of protecting the key parts and sites associated with the skill, whilst also considering the number and sizes of the key parts, environment, invasiveness and user competency (The Association for Safe Aseptic Practice (ASAP), 2013). For standard ANTT procedure, non-sterile gloves can be worn as the key parts, and key sites are limited, such as in cannulation and venepuncture. However, for surgical ANTT procedure such as urinary catheterisation, sterile gloves must be worn, due to the level of invasiveness (ASAP, 2013).

What is the correct procedure?

As healthcare professionals, it is important that you work within guidelines and policies, and use evidence-based practice (NMC, 2015). Therefore, you must ensure that you are aware of the different application methods that are available and how these relate to the different types of gloves that can be utilised. Additionally, being able to correctly apply and remove gloves has been found to

reduce the risk of contamination of healthcare professionals' hands and consequently reduces the potential transmission of healthcare-associated infections (WHO, 2009).

Non-sterile gloves [BJN, please tabulate this procedure]

1. Select the correct size glove for your hands. If the gloves are too large, they could easily become dislodged, and the additional material at the end of the fingers could hinder manual dexterity. If too small, they could restrict blood flow to your fingers.
2. Before donning the gloves, make an assessment of hand health. If required gather an appropriate dressing to cover areas of open skin, as these need to be adequately covered in order to prevent infectious agents from entering the body.
3. Decontaminate hands using the correct procedure, in order to remove transient microorganism and reduce the number of resident microorganisms.
4. Dry hands using the correct technique and apply the dressing. Drying hands is just as important as washing as microorganisms thrive in a warm moist environment.
5. **APPLICATION** - Without touching the container that houses the gloves, remove one glove.
6. To avoid contaminating the glove when applying, only touch the surface of the glove that is closest to the wrist. (Figure 1.1)
7. Advance the fingers into the glove (Figure 1.2) and once donned, do not touch with your ungloved hand.
8. When taking your second glove from the container, remember to use your bare hand. This will limit the possibility of you decontaminating the freshly applied glove by inadvertently touching the container or another surface.
9. When donning the second glove, to avoid touching your forearm with your gloved fingers, turn the external surface of the glove (close to the wrist) over your fingers, (Figure 1.3) and advance hand into the second glove.
10. Once both gloves are donned, inspect for any signs of damage before commencing the task or

procedure.

11. **REMOVAL** - Upon removal of the first glove, be careful not to touch your skin with any part of the contaminated glove. To do this, using the external surface as a shield, hook the gloved fingers of one hand, at the wrist of the other glove (Figure 1.4) and pull the glove down towards the fingers (Figure 1.5).
12. Once the first glove is removed, hold it in the gloved hand. (Figure 1.6) To remove the second glove and avoid contact with the contaminated glove, place fingers into the inside surface of the glove (close to wrist) and pull down over the fingers. (Figure 1.7).
13. When both gloves are removed, touch only the surface close to the wrist.
14. Dispose of the gloves in the clinical waste bin.
15. Decontaminate your hands. This is imperative in order to reduce cross-contamination.

Sterile gloves (open method) [BJN, please tabulate this procedure]

1. Check the integrity of the external packaging and the expiration date of the gloves (Figure 2.1).
This is to ensure that the gloves are not contaminated prior to application.
2. Open the outer packaging and place the inner packet onto a decontaminated and clean surface.
When doing this, you must ensure that the outer packaging does not touch any of the decontaminated surface.
3. Before donning the gloves, make an assessment of hand health. If required gather an appropriate dressing to cover areas of open skin, as these need to be adequately covered in order to prevent infectious agents from entering the body.
4. Decontaminate hands using the correct procedure, in order to remove transient microorganism and reduce the number of resident microorganisms.
5. Dry hands using the correct technique and apply the dressing. Drying hands is just as important as washing as microorganisms thrive in a warm moist environment.

6. With decontaminated hands, open the inner packaging by placing your fingers under the folded edge of the paper (Figure 2.2). This limits contact and the transfer microorganism.
7. The gloves should now be exposed, with the section nearest the wrist folded over.
8. With one hand, gently pick up a glove, by touching only the inner surface of the aspect of the folded over cuff. Advance the other hand into the glove making sure the thumb is facing upwards and that the cuff remains folded over. (Figure 2.3)
9. Once this glove is donned, do not touch the sterile part of the glove with your un-gloved hand. Again, this is to limit the transfer of microorganisms.
10. Next, with your gloved hand, place your fingers under the folded cuff of the other glove ensuring your gloved fingers only touch the sterile part.
11. Move your fingers in an upward motion; lift the glove, so the opening is accessible (Figure 2.4). This will ease the process of inserting your non-gloved fingers.
12. Insert your fingers into the glove and advance your hand by using the folded cuff and sterile gloved hand as aids. (Figure 2.5)
16. Once both gloves are donned, ensure you do not come into contact with any non-sterile surface or object before commencing the procedure.
17. **REMOVAL** - Upon removal of the first glove, be careful not to touch your skin with any part of the contaminated glove. To do this, using the external surface as a shield, hook the gloved fingers of one hand, at the wrist of the other glove and pull the glove down towards the fingers.
18. Once the first glove is removed, hold it in the gloved hand. To remove the second glove and avoid contact with the contaminated glove, place fingers into the inside surface of the glove (close to wrist) and pull down over the fingers.
19. When both gloves are removed, touch only the surface close to the wrist.
20. Dispose of the gloves in the clinical waste bin
21. Decontaminate your hands. This is imperative in order to reduce cross-contamination.

Sterile gloves – closed method [BJN, please tabulate this procedure]

- 1) This technique can be utilised, when a sterile surgical gown is also being worn as part of the surgical ANTT.
- 2) Once the gown is donned, open the inner packaging of the gloves with the fingers pointed towards you and the thumb clearly visible. This is to ensure that the gloves are in the correct position for application.
- 3) Whilst ensuring that your hands are always within the sleeves of the surgical gown, place your thumb behind the folded over section of the sterile glove, so your thumb (which will be in the sleeve of the gown) is directly in contact with the corresponding thumb of the glove. Lift up the glove, and in one swift motion, grasp the remaining section with the opposite hand (which will be within the sleeve of your gown) and pull it over the remaining portion of your partially gloved hand.
- 4) Pull the sleeve of the gown, with your other sleeved hand, towards you, and this will assist you to push your hand further, past the white cuff of the sleeve of the gown and into the sterile glove. Take care during this part, as no part of the white cuff should be outside of the glove.
- 5) Repeat the process on the other hand
- 6) Once both gloves are donned, position your hands in a manner which would ensure that they are not inadvertently touched. This should ideally be in front of you, and very close to your chest.

- 7) If you need to change gloves during the procedure, pull the gown sleeve back over your hand as you remove the glove and apply the new glove using the above technique.

Points to remember:

- The wearing of gloves should not preclude the wearing from decontaminating their hands, prior to donning the equipment.
- While latex-free gloves are the gold standard, it is imperative that if a patient has a latex allergy the material is checked prior to use.
- Non-sterile gloves are primarily located in boxes on the wards.
- Sterile gloves are sealed within sterile packaging.
- Upon removal, if the gloves are heavily soiled, discard each glove separately into a clinical waste bin.

Images (the below images are the property of Northumbria University, and we give permission to the BJN to use these in this publication)

Figure 1.1



Figure 1.2



Figure 1.3



Images for removing non-sterile gloves

Figure 1.4

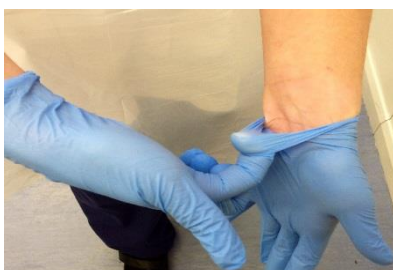


Figure 1.5



Figure 1.6



Figure 1.7



Images for applying sterile gloves

Figure 2.1



Figure 2.2

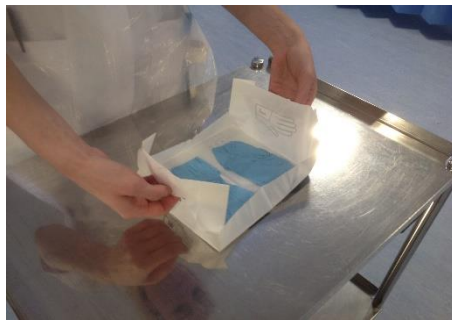


Figure 2.3



Figure 2.4

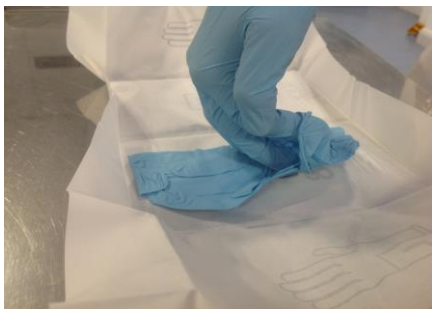


Figure 2.5



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